

E 98

.P8 R2







INDIAN POTTERY.

BY CHARLES RAU.

IN former times, when the aboriginal inhabitants of this country were still in possession of their own lands, and their mode of living had not been changed by the intrusion of the pale-faced Caucasian, the art of pottery was practised by them to a considerable extent. This branch of industry lost, however, much of its importance among the Indians so soon as they discovered the superiority of the vessels of metal, which they obtained in trafficking with the whites, and the durable kettle of iron or copper soon replaced the fragile and far less serviceable cooking utensil of clay. The beginning of the decline of this aboriginal art is, therefore, of an early date, and at the present time it may be considered as almost, if not entirely, extinct among the tribes still inhabiting the territory of the United States, excepting some in New Mexico and Arizona, who have not yet abandoned the manufacture of earthenware. As late as 1832, when Mr. Catlin visited the nations of the Upper Missouri, he found the Mandans still diligently practising the ceramic art; but the ravages of the small-pox have reduced their number to a few, and it is probable that vessels of clay are no longer made in those regions.

The Iroquois, of New York, those survivors of the once powerful Confederation who have escaped the fate of being driven toward the setting sun, and are still permitted to dwell upon their native soil, have ceased long ago to fabricate earthen vessels. So I am informed by Dr. Peter Wilson, De-jih-non-da-weh-hoh, grand chief of the Six Nations of New York. "The manufacture of pottery," says my correspondent, "has long since been discontinued among our people; like most other utensils, clay vessels have been superseded by utensils of the manufacture of the race who introduced among us the implements which are more durable and convenient. Such implements and other articles used among us only remain, or are being manufactured, as are not superseded by articles which the ingenuity of the pale face replaces." The same remark can probably be applied to the other tribes east of the Rocky Mountains.

That the fabrication of earthenware was once carried to a great extent among the Indians, is shown by the great number of sherds which lie scattered over the sites of their former villages and on their camping places; but they are, perhaps, nowhere in this country more numerous than in the "American Bottom," a strip of land which extends about one hundred miles along the Mississippi, in Illinois, and is bounded by the present bank of that river and its former eastern confine, indicated by a range of picturesque wooded hills and ridges, commonly called the "Bluffs." This bottom, which is on an average six miles wide and very fertile, was formerly the seat of a numerous indigenous population, and abounds in tumular works, cemeteries, and other memorials of the subdued race. Among the lesser relics left by the former occupants may be counted the remnants of broken vessels, which occur very abundantly in various places of this region. These fragments are, however, mostly small; and, according to my experience, entire vessels are not found on the surface, but frequently in the ancient mounds and cemeteries, where they have been deposited with the dead as receptacles for food, to serve on their journey to the happy land of spirits.

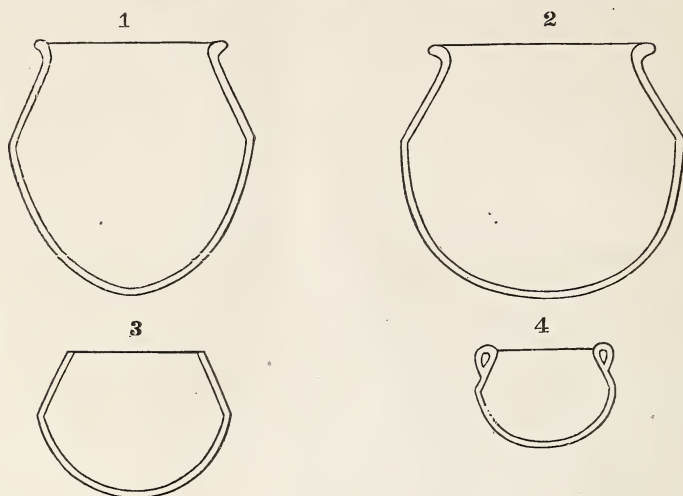
About six years ago, while living in the west, I was much gratified by the discovery of a place in the American Bottom where the manufacture of earthenware was evidently carried on by the Indians. The locality to which I allude is the left bank of the Cahokia creek,* at the northern extremity of Illinoistown, opposite St. Louis. At the point just mentioned the bank of the creek is somewhat high and steep, leaving only a small space for a path along the water. When I passed there for the first time, I noticed, scattered over the slope or protruding from the ground, a great many pieces of pottery of much larger size than I had ever seen before, some being of the size of a man's hand, and others considerably larger; and, upon examination, I found that they consisted of a grayish clay mixed with pounded shells. A great number of old shells of the *unio*, a bivalve which inhabits the creek, were lying about, and their position induced me to believe that they had been brought there by human agency rather than by the overflowing of the creek. My curiosity being excited, I continued my investigation, and discovered at the upper part of the bank an old fosse, or digging, of some length and depth, and overgrown with stramonium or jimson weed; and upon entering this excavation, I saw near its bottom a layer of clay, identical in appearance with that which composed the fragments of pottery. The excavation had unmistakably been dug for the purpose of obtaining the clay, and I became now convinced beyond doubt that the fabrication of earthen vessels had been carried on by the aborigines at this very spot. All the requisites for manufacturing vessels were on hand; the layer of clay furnished the chief ingredient, and the creek not only supplied the water for moistening the clay, but harbored also the mollusks whose valves were used in tempering it. Wood abounded in the neighborhood. All these facts being ascertained, it was easy to account for the occurrence of the large fragments. Whenever pottery is made, some of the articles will crack during the process of burning, and this will happen more frequently when the method employed in that operation is of a rude and primitive character, as it doubtless was in the present case. The sherds found at this place may, therefore, with safety be considered as the remnants of vessels that were spoiled while in the fire, and thrown aside as objects unfit for use.

I did not succeed in finding the traces of a kiln or fireplace, and it is probable that the vessels were merely baked in an open fire, of which all vestiges have been swept away long ago. The occurrence of the broken pottery was confined to a comparatively small area along the bank, a space not exceeding fifty paces in length, as far as I can recollect. They were most numerous in the proximity of the old digging, and at that place quite a number of them were taken out of the creek into which they had fallen from the bank. Farther up the creek I saw another excavat on in the bank, of much smaller dimensions, and likewise dug for obtaining clay. Among the shells and sherds I noticed many flints which had obviously been fashioned to serve as cutting implements; they were, perhaps, used in tracing the ornamental lines on the vessels or in smoothing their surfaces.

I did not find a single complete vessel at this place, but a great variety of fragments, the shape of which enabled me to determine the outline of the utensils of which they originally formed parts. This was not a very difficult matter,

*This creek runs in a southwardly direction through Madison county and a part of St. Clair county, and empties into the Mississippi four miles below St. Louis, near the old French village of Cahokia.

especially in cases when portions of the rim remained. Figures 1 and 2 represent (in sections through the middle) the prevailing forms of the vessels.



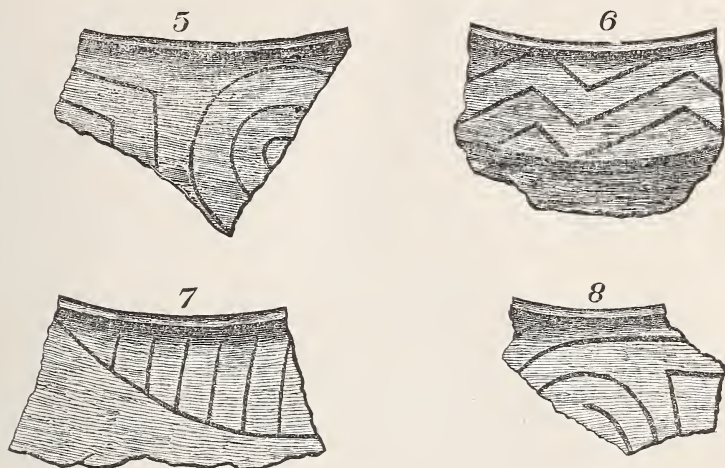
✓The rim, it will be seen, is formed into a lip and turned over, in order to facilitate suspension; sometimes, however, it is cut off abruptly, as in Fig. 3. Some of the vessels—more especially the smaller ones—were provided with ears, like Fig. 4;* others had the outer rim set with conical projections or studs, both for convenience and ornament; and a few of the fragments exhibit very neatly indented or notched rims. ✓In size these vessels varied considerably; some measured only a few inches through the middle, while the largest ones, to judge from the curvature of the rims, must have exceeded *two feet in diameter*. The bottom of the vessels mostly seems to have been rounded or convex. I found not a single flat bottom-piece. This, however, may be merely accidental, considering that flat-bottomed vessels were made by the Indians. The appearance of the fragments indicates that the earthenware was originally tolerably well burned, and the fracture exhibits in many instances a reddish color. But, as the art of glazing was unknown to the manufacturers, it is no wonder that the sherds, after having been imbedded for many years in the humid ground, or exposed to rain and the alternate action of a burning sun and a severe cold, are now somewhat brittle and fragile; yet, even when new, this aboriginal earthenware must have been much inferior in compactness and hardness to the ordinary kind of European or American crockery.

✓The thickness of the fragments varies from one-eighth to three-eighths of an inch, according to the size of the vessels, the largest being also the strongest in material. ✓But in each piece the thickness is uniform in a remarkable degree; the rims are perfectly circular, and the general regularity displayed in the workmanship of these vessels renders it almost difficult to believe that the manufacturers were unacquainted with the use of the potter's wheel. Such, however, was the case. ✓I have already mentioned that the clay used in the fabrication of this earthenware is mixed with coarsely pulverized unio-shells from the creek; only a few of the smaller bowls or vases seem to consist of pure clay. ✓The vessels were covered on the outside, and some even on both sides, with a thick coating of paint, either of a black, dark brown, or beautiful red color, and

* I possess a small food vase of this shape, which was taken out of an old Indian grave on the "Bluffs," near French village, six or seven miles east of Illinoistown. It was, perhaps, made at the very place which I have described.

in some fragments the latter still retains its original brightness. Only *one* color, however, was used in the painting of each article. It is evident that the coloring preceded the process of baking, and the surfaces thus coated are smooth and shining, the paint replacing to a certain extent the enamel produced by glazing.

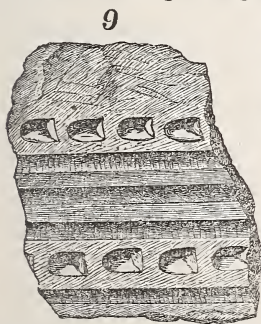
That the aboriginal potters on the Cahokia creek did not neglect the decorative art in their manufactures, is shown by the ornamental lines traced on the surface of their crockery. The simplest form of ornamentation consists in straight lines running around the vessel parallel to the rim; but they employed also other combinations of lines, of which figures 5, 6, 7, and 8 are examples. In some instances



the *inside* only was ornamented. The lines are mostly drawn with great regularity, and sometimes one-eighth of an inch wide, with a corresponding depth. I obtained, however, from the deposit at the Cahokia creek one small fragment, which exhibits a much higher degree of skill in the art of decoration than any of the others

found at the same place. Figure 9 represents it in full size. This specimen is about three-sixteenths of an inch thick, and consists of clay with an admixture of pulverized granite, the components of which—quartz, feldspar, and mica—can be plainly distinguished in the fracture. It is well baked and of a light-gray color. The ornamental lines and notches are impressed, or, perhaps, scooped out, with the greatest accuracy, and the vessel, when complete, must have presented a very good specimen of aboriginal ceramic art. Whoever compares the annexed drawing with Fig. 5 on Plate 46 of the "Ancient Monuments of the Mississippi Valley," by Squier and Davis, will find

that the originals of the representations are nearly alike in point of ornamentation. The latter drawing delineates a part of a vase found in one of the ancient mounds of Ohio. Having seen the best specimens of "mound" pottery obtained during the survey of Messrs. Squier and Davis, I do not hesitate to assert that the clay vessels fabricated at the Cahokia creek were in every respect equal to those exhumed from the mounds of the Mississippi valley, and Dr. Davis himself, who examined my specimens from the first-named locality, expressed the same opinion.



One of the methods employed by the Indians in the manufacture of earthenware was, to weave baskets of rushes or willows, similar in shape to the vessels they intended to make, and to coat the inside of these baskets with clay to the required thickness; the baskets, after being destroyed by the fire, left on the outer surface of the vessels peculiar impressions, resembling basket-work, which produce a very pleasing effect, and replace ornamentation to a certain extent.*

With this method the potters on the Cahokia creek were likewise acquainted, for I found a few pieces of their ware bearing the marks just mentioned. This sort of pottery, however, is not mixed with pounded shells, but with sand, and is much better baked than the other kind; it has a pale-reddish appearance, and is not painted.

Lastly, I have to enumerate among the objects of baked clay obtained from the deposit in the American Bottom, two articles resembling the beaks of large birds, perhaps detached pot or pan handles; a flat piece, forming the base of the figure of some animal, of which, unfortunately, the tail only remains, and the remnant of a toy canoe. The last-named specimen, probably made by some affectionate Indian mother for her little son, was picked up from the bottom of the creek.

The question now arises, who were the makers of these manufactures of clay? I simply ascribe them to the Cahokia Indians, who dwelt, until a comparatively recent period, on the banks of the creek that still bears the name of their tribe. Concerning the antiquity of the manufactures described on the preceding pages, I am not prepared to give an estimate. Only a hundred years may have elapsed since they were made, yet it is also possible that they are much older. The appearance of the fragments rather indicates a modern origin.

The writings of early, and even comparatively modern, authors on North America are not deficient in particulars relating to the art of pottery among the natives. According to their statements, those tribes were most advanced in the manufacture of earthenware, who inhabited the large tracts of land formerly called Florida and Louisiana, which comprise at present the southern and southwestern States of the Union; and their testimony is fully corroborated by the character of such specimens of pottery from those parts as have escaped destruction, and are preserved in the collections of the country.† The Natchez, on the Lower Mississippi, perhaps the most civilized among the North American Indians, and supposed to be related to the Aztecs, were skilful potters. So we are told by the anonymous Portuguese gentleman called the "Knight of Elvas," who accompanied, towards the middle of the sixteenth century, De Soto on his adventurous expedition through a great portion of the North American continent, and became afterwards the chronicler of that bold Spaniard's exploits. In the province of Aguatex, he states, clay vessels were made "which differed very little from those of Estremoz or Montemor." These two towns in Portugal are noted for their earthenware.‡ Du Pratz mentions the "Ecore Blanc," on the

* Bartram describes a vessel of this kind which he extracted from a shell-mound on one of the islands near the coast of Georgia.—*Bartram's Travels*, Dublin, 1793, p. 6.

† "In some of the southern States, it is said, the kilns in which the ancient pottery was baked are now occasionally to be met with. Some are represented still to contain the ware, partially burned, and retaining the rinds of the gourds, &c., over which they were modelled, and which had not been entirely removed by the fire. In Panola county, Mississippi, are found great numbers of what are termed *pottery kilns*, in which are masses of vitrified matter, frequently in the form of rude bricks, measuring twelve inches in length by ten in breadth. It seems most likely that these *kilns* are the remains of the manufactures of the later tribes—the Choctaws and Natchez—who," says Adair, "made a prodigious number of vessels of pottery, of such variety of forms as would be tedious to describe and impossible to name."—*Ancient Monuments of the Mississippi Valley*, Washington, 1848, p. 195.

‡ Virginia Richly Valued, by the Description of the Maine Land of Florida, her next Neighbour, &c. Written by a Portugall Gentleman of Eluas, employed in all the Action, and translated out of the Portugese by Richard Haklvyt, London, 1609, (reprint of 1812, Supplement,) p. 750.

Mississippi, as one of the localities where the Natchez obtained clay for their pottery, and likewise *ochre* to paint it. "When coated with ochre," he says, "it becomes red after the burning." Elsewhere, in speaking of the manufacture of clay vessels by the natives of Louisiana, the same author remarks: "The women make pots of an extraordinary size, jars with a small opening, bowls, two-pint bottles with long necks, pots or jugs for preserving bear oil, holding as much as forty pints, and, finally, plates and dishes in the French fashion."*

Dumont, who likewise describes the manners of the people inhabiting the extensive country formerly called Louisiana, has left a more minute account of the method they employed in making earthenware. He says: "After having amassed the proper kind of clay and carefully cleaned it, the Indian women take shells which they pound and reduce to a fine powder; they mix this powder with the clay, and having poured some water on the mass, they knead it with their hands and feet, and make it into a paste, of which they form rolls six or seven feet long and of a thickness suitable to their purpose. If they intend to fashion a plate or a vase, they take hold of one of these rolls by the end, and fixing here with the thumb of the left hand the centre of the vessel they are about to make, they turn the roll with astonishing quickness around this centre, describing a spiral line; now and then they dip their fingers into water and smooth with the right hand the inner and outer surface of the vase they intend to fashion, which would become ruffled or undulated without that manipulation. In this manner they make all sorts of earthen vessels, plates, dishes, bowls, pots, and jars, some of which hold from forty to fifty pints. The burning of this pottery does not cause them much trouble. Having dried it in the shade, they kindle a large fire, and when they have a sufficient quantity of embers, they clean a space in the middle, where they deposit their vessels and cover them with charcoal. Thus they bake their earthenware, which can now be exposed to the fire, and possesses as much durability as ours. Its solidity is doubtless to be attributed to the pulverized shells which the women mix with the clay."†

Adair, more than a century ago a trader with the tribes who occupied the southern portion of the present Union, confines himself to the following remarks:

"They make earthen pots of very different sizes, so as to contain from two to ten gallons; large pitchers to carry water; bowls, dishes, platters, basins, and a prodigious number of other vessels of such antiquated forms as would be tedious to describe and impossible to name. Their method of glazing them is, they place them over a large fire of smoky pitch-pine, which makes them smooth, black, and firm. Their lands abound with proper clay for that use."‡

Loskiel, who describes the manners of the Delawares and Iroquois, states that they made formerly kettles and cooking-pots of clay, which they mixed with finely pounded shells, and burned until they became black throughout. Quite large pieces of their pots, he says, in which the pounded shells could still be seen, were often found in such places where the Indians had dwelt in ancient times; but after the arrival of the Europeans very light kettles of brass had generally been introduced among them.§ Thus we see that these tribes began at an early period to neglect the manufacture of clay vessels.

A very good account relating to the art of pottery, as formerly practised by the western tribes, is given by *Hunter*. "In manufacturing their pottery for cooking and domestic purposes," he says, "they collect tough clay, beat it into powder, temper it with water, and then spread it over blocks of wood, which have been formed into shapes to suit their convenience or fancy. When sufficiently dried, they are removed from the moulds, placed in proper situations,

* *Du Pratz, Histoire de la Louisiane*, Paris, 1758, vol. i, p. 124, and vol. ii, p. 179.

† *Dumont Mémoires Historiques sur la Louisiane*, Paris, 1753, vol. ii, p. 271, &c.

‡ *Adair's History of the American Indians*, London, 1775, p. 424.

§ *Loskiel, Geschichte der Mission der evangelischen Brüder unter den Indianern in Nord-Amerika*, Barby, 1789, p. 70.

and burned to a hardness suitable to their intended uses. Another method practised by them is, to coat the inner surface of baskets made of rushes or willows with clay, to any required thickness, and when dry, to burn them as above described. In this way they construct large, handsome, and tolerably durable ware; though latterly, with such tribes as have much intercourse with the whites, it is not much used, because of the substitution of cast-iron ware in its stead."

"When these vessels are large, as is the case for the manufacture of sugar, they are suspended by grape-vines, which, wherever exposed to the fire, are constantly kept covered with moist clay. Sometimes, however, the rims are made strong, and project a little inwardly quite round the vessel so as to admit of their being sustained by flattened pieces of wood slid underneath these projections and extending across their centres."*

Lastly, I will quote here the remarks made by *Catlin* relating to the fabrication of earthenware among the Mandans. "Earthen dishes or bowls are a familiar part of the culinary furniture of every Mandan lodge, and are manufactured by the women of this tribe in great quantities, and modelled into a thousand forms and tastes. They are made from a tough black clay and baked in kilns which are made for the purpose, and are nearly equal in hardness to our own manufacture of pottery, though they have not yet got the art of glazing, which would be to them a most valuable secret. They make them so strong and serviceable, however, that they hang them over the fire, as we do our iron pots, and boil their meat in them with perfect success. I have seen some few specimens of such manufacture, which have been dug up in Indian mounds and tombs in the southern and middle States, placed in our eastern museums and looked upon as a great wonder, when here this novelty is at once done away with, and the whole mystery; where women can be seen handling and using them by hundreds, and they can be seen every day in the summer also, moulding them into many fanciful forms, and passing them through the kilns where they are hardened."†

The largest vessels made by the Indians, it seems, were those used in procuring salt by evaporation near salt springs. *Du Pratz* mentions a locality in Louisiana where the aborigines collected salt in earthen vessels made on the spot, before they had been supplied with kettles of metal by the French.‡ The "Knight of Elvas" likewise describes the method of salt-making employed by the natives. "The saline below St. Genevieve, Missouri," says *Brackenridge*, "cleared out some time ago and deepened, was found to contain wagon loads of earthenware, some fragments bespeaking vessels as large as a barrel, and proving that the salines had been worked before they were known to the whites."§

I had occasion to examine a fragment of a vessel of this kind sent to Dr. Davis in 1859 by Mr. George E. Sellers, who obtained it at the salt springs near Saline river, in southern Illinois, a locality where salt was formerly made by the Indians. Several acres, Mr. Sellers states, are covered with broken vessels, and heaps of clay and shells indicate that they were made on the spot. They presented the shape of semi-globular bowls with projecting rims; and measured from thirty inches to four feet across the rim, the thickness varying from one-half to three-quarters of an inch. This earthenware had evidently been modelled in baskets. The fragment sent to Dr. Davis is a rim-piece three-quarters of an inch thick, consisting of three distinct layers of yellowish clay, mixed with very coarsely pounded shells. It is solid and heavy, and must have been tolerably well baked. The impressions on the outside are very regular

* *Hunter's Manners and Customs of several Indian tribes located west of the Mississippi*, Philadelphia, 1823, p. 296, &c.

† *Catlin's North American Indians*, London, 1848, vol. i, p. 116.

‡ *Du Pratz*, vol. i, p. 307.

§ *Brackenridge, Views of Louisiana*, Pittsburg, 1814, p. 186.

and really ornamental, proving that those aboriginal potters were also skilful basket-makers.

It would be erroneous to suppose the art of manufacturing clay vessels had been in use among *all* the tribes spread over this widely extended country; for, though exhibiting much general similarity in character and habits, they differed considerably in their attainments in the mechanical arts. This was the consequence of local circumstances, such as configuration and quality of the soil, climate, and other natural conditions which influenced, or rather determined their mode of life. Some of the North American tribes, who did not understand the fabrication of earthen vessels, were in the habit of cooking their meat in water set to boiling by means of heated stones which they put into it, the receptacles used in this operation being large wooden bowls, water-tight baskets, or even the raw hides of animals they had killed. The Assinaboins, for example, cooked in skins. "There is a very curious custom among the Assinaboins," says *Catlin*, "from which they have taken their name—a name given them by their neighbors from a singular mode they have of boiling their meat, which is done in the following manner: When they kill meat, a hole is dug in the ground about the size of a common pot, and a piece of the raw hide of the animal, as taken from the back, is put over the hole, and then pressed down with the hands close around the sides, and filled with water. The meat to be boiled is then put in this hole or pot of water; and in a fire, which is built near by, several large stones are heated to a red heat, which are successively dipped and held in the water until the meat is boiled; from which singular and peculiar custom, the Ojibways have given them the appellation of Assinaboins or Stone-boilers."

"This custom," he continues, "is a very awkward and tedious one, and used only as an ingenious means of boiling their meat, by a tribe who was too rude and ignorant to construct a kettle or pot. The traders have recently supplied these people with pots; and even long before that, the Mandans had instructed them in the secret of manufacturing very good and serviceable earthen pots, which together have entirely done away the custom, excepting at public festivals, where they seem, like all others of the human family, to take pleasure in cherishing and perpetuating their ancient customs."* Yet, the Assinaboins may, nevertheless, have been acquainted with the art of pottery; for they are a detached branch of the Dacotahs, probably of the Yankton band of that nation, and we have the testimony of *Carver*, for instance, that the Naudowessies—that is, the Dacotahs or Sioux—made "pots of clay, in which they boiled their victuals."†

Some of the tribes of New Mexico and Arizona, as, for example, the Mojaves and Pimas, still manufacture pottery; but the Pueblo Indians of those districts are especially noted for their fictile fabrics. "They manufacture, according to their aboriginal art, both for their own consumption and for the purposes of traffic, a species of earthenware not much inferior to the coarse crockery of our common potters. The pots made of this material stand fire remarkably well, and are the universal substitutes for all the purposes of cookery, even among the Mexicans, for the iron castings of this country, which are utterly unknown there. Rude as this kind of crockery is, it nevertheless evinces a great deal of skill, considering that it is made entirely without lathe or any kind of machinery. It is often fancifully painted with colored earths and the juice of a plant called *guaco*, which brightens by burning."‡

Speaking of that region, I must not omit to allude, at least, to the numerous fragments of ancient pottery which occur on the Little Colorado (Colorado Chiquito), and Gila, especially among ruins, and are often highly decorated and painted with various colors, exhibiting a style of workmanship differing from

* *Catlin*, vol. i, p. 54.

† *Carver's Travels*, London, 1781, Harper's Reprint, p. 154.

‡ *Gregg's Commerce of the Prairies*, Philadelphia, 1851, vol. i, p. 278.

and surpassing that which prevailed on the eastern side of the Rocky Mountains. Descriptions of these relics, however, would exceed the intended limits of this essay, and, moreover, they have been given elsewhere, together with speculations concerning the character of the manufacturers.*

Some years ago, while visiting northern Europe, I had occasion to see many specimens of ancient pottery deposited in the archæological collections of that district, and having previously become acquainted with the character of North American aboriginal pottery, it afforded me great pleasure to trace the similarity in the fictile manufactures of both continents. Where the external conditions of life were similar among men, their inventive powers were necessarily exerted in a similar manner. We have the testimony of *Tacitus*, that the inhabitants of Germany lived, about two thousand years ago, much in the manner of the North American Indians, before the original habits of the latter had undergone the changes resulting from their intercourse with Europeans or their descendants; and it is, therefore, quite natural that both races should have resorted to the same, or, at least, similar means to satisfy their wants. The ancient flint implements of northern Europe bear a close resemblance to those formerly made by the natives of this country, and a like conformity is exhibited in the character of their manufactures of clay.

The aborigines of North America, to recapitulate the general characteristics of their pottery, formed their vessels by hand, modelling them sometimes in baskets, and were, as far as we know, unacquainted with the art of glazing. They mixed the clay used in their pottery either with pounded shells or sand, or with pulverized silicious rocks; mica also formed sometimes a part of the composition. Their vessels were often painted with ochre, producing various shades, from a light yellow to a dark brown, or with a black color. They decorated their pottery with lines or combinations of lines and dots, and embellished it also by notching the rims, or surrounding them on the outside with studs, or in various other ways. Their vessels exhibited a great variety of forms and sizes, and many of them had rounded or convex bottoms. They hardened their earthenware in open fires or in kilns, and notwithstanding the favorable statements of some authors, it was much inferior in compactness to the common crockery manufactured at present in Europe or America, and has even, in some instances, an appearance as though it had merely been dried in the sun.

The same details, somewhat modified, are applicable to the specimens of ancient pottery preserved in the museums of northern Germany, and frequently obtained from ancient burial places, where they had been placed by the side of the dead, or as receptacles of their ashes. Many of these vessels were evidently fashioned by hand; but others, especially the larger ones, bear the unmistakable traces of the lathe, the use of which was, perhaps, known to the German tribes before they had intercourse with the Romans. The clay composing these vessels is strongly mixed with quartz sand, to which very frequently mica is added, probably with a view to impart more solidity to the mass. Ancient German clay vessels, after being exhumed, are soft and so fragile that a somewhat rough handling destroys them at once. The roots of trees and shrubs have often grown through those that are dug up in woods, which obviously shows that they were not sufficiently burned; for well-burned clay, like that composing the pipes of Roman aqueducts and the bricks of the middle age, resists humidity even better than many kinds of stone. When exposed to the air, these vessels become tolerably hard within a few hours; but in rare instances only they have that peculiar ring which characterizes well-burned earthenware. It seems, therefore, that they were not burned in kilns, but merely in strong open fires.† Many

* The reader is referred to an excellent chapter by Mr. Thomas Eubank, entitled "Illustrations of Indian Antiquities and Arts," in the third volume of Pacific Railroad Reports, Washington, 1856.

† *Kleum*, Germanische Alterthumskunde, Dresden, 1836, p. 167.

of the urns are painted with yellow or red earths, or a black color, the latter pigment being sulphuret of molybdenum. May not the same substance, which occurs in many localities of the United States, have been used by the Indians for blackening their pottery? An analysis would easily decide the question. The same parallel and zigzag lines, or rows of dots, which decorate Indian vessels, are also seen on the ancient pottery of the north of Europe, and of other parts of that continent. They constitute the simplest elements of ornamentation, and have, therefore, everywhere been employed by man when he made his first attempts in the art of decoration. On the surface of a few ancient vases or urns found in Germany I noticed those markings which present the appearance of basket-work; I was, however, in doubt whether they were impressions produced by the inside of baskets, or simply ornamental lines traced on the wet clay. Yet, even in the latter case, it would seem that this kind of ornamentation was suggested by the former practice of modelling vessels in baskets. I further saw some apparently very old specimens of pottery with rounded bottoms. The oldest vessels of all nations, who practised the potter's art, probably exhibited that shape, the model of which was furnished by nature in the gourd and other fruits presenting rounded outlines. A flat bottom, therefore, would denote a progress in the ceramic art. Other particular features common to the pottery of both, the ancient inhabitants of Germany and the aborigines of North America, might be pointed out; but the fictile fabrics of the former exhibit, on the whole, more elegance of outline, and therefore indicate a higher state of art. The similarity in the manufactures of men in various climates is greatest when art is in its very infancy among them. In the course of gradual development, the primitive forms common to mankind become more and more indistinct, and finally emerge into those varied and characteristic shapes which reflect the individuality of nations.

Deacidified using the Bookkeeper process.
Neutralizing agent: Magnesium Oxide
Treatment Date: March 2010

Preservation Technologies

A WORLD LEADER IN COLLECTIONS PRESERVATION
111 Thomson Park Drive
Cranberry Township, PA 16066
(724) 779-2111

DOBBS BROS.
LIBRARY BINDING

MAR 7 1907

ST. AUGUSTINE

FLA.



32084

LIBRARY OF CONGRESS



0 024 417 386 A